UT Telemedicine Network

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The University of Tennessee Telemedicine Network at Knoxville provides care to the people of East Tennessee. Patients can receive medical care in their community hospitals and clinics, and in their homes. The beautiful mountain ridges in East Tennessee and rivers between the ridges create barriers to medical access. Low income and a fear of driving in the city increase the medical access problem.

In 1995, the University of Tennessee Medical Center at Knoxville established the UT Telemedicine Network. Since that time, the network has increased in patient encounters by an average of 178 % per year. Services offered include clinical consultations, home care, and family visits.

Clinical consultations provide specialty care in communities where it is not otherwise available. To begin a telemedicine program in a community, we first ask the medical leaders in that community to identify the needs of their patients. Next we consider the patients' medical needs and how these would be addressed in a telemedicine clinic, and the needs of the care provider during consultations with the patients. Finally, we address the technology. Medical need of the patients drives the process, not technology. We do not practice telemedicine. We practice medicine.

When a telemedicine clinic is scheduled, a physician or other care provider is in the UT Telemedicine Exam Room in Knoxville and patients are in Telemedicine Exam Rooms in their community hospitals and clinics. The first patient is seen by connecting the UT Exam Room to his or her Community Exam Room using audio and video conferencing equipment. The UT Telemedicine Network does everything possible to make the patient and the care provider feel like they are in the same room and to provide them with the privacy of a traditional exam room. Electronic medical instruments are provided to assist in evaluating the patient. A nurse is in the Community Exam Room with the patient to present him or her to the provider. The provider is given the patient's medical records, diagnostic test data, and standard office forms used in the provider's practice. The physician's written prescriptions are faxed from the UT Exam Room to the Community Exam Room, and are handed to the patient as if the patient and provider were in the same room.

After the first patient is examined in the clinic, the provider electronically exits from the patient exam room and prepares notes on the evaluation. These notes are sent to the community physician who referred the patient so that the two providers can coordinate care. While the

provider has been busy completing notes for the first patient and reading the record of the second patient, a nurse or medical assistant with the provider has switched the network to the Community Exam Room for the second patient. The provider electronically enters the second room when the patient and the presenting nurse are ready.

As can be seen, telemedicine clinics are operated as a "virtual office." The provider in the UT Telemedicine Exam Room and is switched from one Community Exam Room to another like a provider going from exam room to exam room in a traditional medical office. Patients benefit because they do not have to leave their community to obtain the needed medical care when it is suitable to provide this care by telemedicine. Community physicians and health care facilities benefit because the patient is kept in their town where they can participate in the care including tests and procedures. The patient's community benefits because the patient is purchasing more medical services in the town and is not spending money in the city during trips for medical care. In addition, the community does not lose the productivity of the patient from his or her employment.

The UT Telemedicine Network has offered clinics in dermatology, anesthesiology, psychiatry, surgery, physiatry, cardiology, neurology, and gastroenterology. In each of these clinics, the providers only offer services that are appropriate by telemedicine. Evaluations of care by patients show that 68% rate "seeing the doctor" by telemedicine as better than a traditional office visit due to the focused attention of the care provider.

In addition to clinical telemedicine, home care is an important part of the UT Telemedicine Network. We have provided over 500 home care visits in our telemedicine Home Touch™ program since April 1998. These are similar to clinical evaluations except that the patient is in the home and a nurse is the typical care provider. Patients benefit because care can be obtained quicker and independent of weather. Evaluations of care by home patients have shown that 100% are comfortable with talking to the nurse and are willing to use telemedicine again. After having telemedicine for nine months, one patient said, "I'd probably done been in the hospital for 9-10 days" without telemedicine. Another patient's family said, "When we need medical help, we need it right now, not an hour later."

The cost saving per visit has averaged $49 by removing the nurse travel time and transportation expense. Typical equipment cost in the home is equivalent to the cost saved in 35 visits. Using home care telemedicine for only 10% of the visits in the United States has the potential to save over a billion dollars. (National Association of Home Care, www.nahc.org) Telemedicine can decrease the cost and improve the delivery of home care with benefits to patients and providers.

When a patient is sent to see a specialist too early in the disease process, the cost of care increases. In research done by our program, the cost of care for skin diseases in a community without a dermatologist was twice that of care with a dermatologist provided by telemedicine (Burgiss, et.al. Telemedicine for dermatology care in rural patients. Telemedicine Journal, 1997;3:227-233.) The correct level of medical care at the correct time results in the least cost. A portion of the medical cost that could be saved by telemedicine providing the correct level of care in clinics and homes should be applied to the facility cost of providing this care.